deposits in Western Siberia, but they reappear and form the surface of wide areas in central and eastern Siberia. This northern section of Eurasia forms Prof. Suess's primitive "Scheitel." It forms the foundation of Asia, and is bounded along its southern edge by concurrent mountain chains. The Ural mountains might be considered the western member of this peripheral series, but Suess regards it as a mountain line lying on this continental block which extends beyond them into western Europe; and he describes the Variscan Mountains of southern Germany and the Armorican Mountains, the worn down fragments of which form the hills of Belgium, Brittany, Devonshire, Cornwall, and southern Ireland, as the westernmost preserved parts of the marginal chains. It is, therefore, obvious from the broken ends of the Armorican Mountains that Eurasia must once have extended far westward into the Atlantic. Scotland and Scandinavia, however, are now the westernmost portions of this ancient continent. Prof. Suess briefly re-describes them, in reference to the great overthrusts that have been demonstrated during the past twenty-five years; and he considers why the overthrusting was westward in Scotland and eastward in Scandinavia. This section of the book even now requires revision, since Björlykke's monograph shows that Scandinavian opinion is not as unanimous as to the existence of the overthrusting as is represented, while the trend of opinion in Scotland for some years past has been against the view that the Scottish schists include altered Silurian rocks.

The second fundamental element in the structure of Eurasia was the long inland sea, the Tethys, that once separated northern Eurasia from the lands to the south. The Tethys is still represented in the western area by the Mediterranean; but in Asia it has been drained by uplift.

The third constituent of Eurasia is the fragments of Gondwanaland left in the Asiatic peninsulas. The union of the ancient continent to the north with the southern peninsulas by the disappearance of the eastern Tethys has formed the existing continent of Asia.

Even more care has been taken over the translation of this volume than of its two predecessors, and the accurate translation by Dr. Hertha Sollas has been revised by a group of distinguished geologists as a tribute of respect for Prof. Suess. The whole was then revised by Prof. Sollas. The French translation of this volume has the advantages of a fuller series of maps and sections which M. de Margerie has added to the rather scanty series supplied with the original; and the geographical terms in its sections are translated. A student might easily be confused by seeing Wasserschiede, Pass, and place-names in German transliterations all on the same section. It would have been an advantage to English-speaking students if the proper names had been given in English instead of in German forms, as it is sometimes difficult to identify them in British atlases or indexes. With this mass of foreign names occasional misprints are inevitable; thus, on p. 393, Sjörgen appears instead of Sjögren, and the Ekne schists are said to be possibly of Devonian instead of Caledonian age.

British geologists will be so grateful for this scholarly translation that they will be little disposed to criticise the rendering of Suess's geological terms; but it would be convenient if the original term were sometimes, as in the French translation, given in a footnote. Thus what Suess calls the "Scheitel" is translated the vertex, a term of doubtful suitability for an area extending from Scotland to eastern Siberia and from the Arctic Ocean to the Black Sea. Occasionally we find the other extreme and a German word retained where there appears to be an established English equivalent. Thus we read of a Garbenschist as if that were an accepted English petrological term.

The translation of the next volume is promised at the same time as the publication of the German and French editions, and as in it we may expect the general summary of Prof. Suess's conclusions, it will be eagerly awaited. J. W. G.

INFANTILISM.

On Infantilism from Chronic Intestinal Infection, characterised by the Overgrowth and Persistence of Flora of the Nursling Period. By Prof. C. A. Herter. Pp. v+118. (New York: The Macmillan Company; London: Macmillan and Co., Ltd., 1908.) Price 4s. net.

IN a monograph of a hundred odd pages, the author presents a detailed study of five cases of severe nutritional disorder occurring in children. He regards them as typical examples of a distinct pathological condition, which he calls intestinal infantilism. He claims that this is a definite disease, distinct from, although sometimes associated with, other nutritional disorders, such as rickets, anæmia, marasmus, &c.

The patients were children between the ages of four and seven. They were all healthy at birth and during infancy, but in the second or third year of life they developed symptoms of intestinal disturbance, accompanied by failure of nutrition, which culminated in a state of complete arrest of physical growth for periods of months or years.

When they came under observation, a year or more after the onset of symptoms, these patients exhibited a striking clinical picture. Children of five, seven, or eight years of age weighed less than normal children of two. A boy (case 1), at the age of eight, weighed 31 lb., his development having been arrested since the age of three. Associated with their physical condition, the patients showed a chronic and very marked degree of muscular fatigue, a moderate grade of anæmia, and in some of the cases slight rickets. Their mental powers were retained to a very great extent, although naturally they were backward in comparison with normal children who were able to play games and to go to school.

The disturbance of intestinal function was shown by absolute intolerance of carbohydrates and great difficulty in the digestion of fats and earthy salts. The appetite remained ravenous, but the patients were unable to digest or assimilate food. The stools were

pale, bulky, with abundance of undigested fat, and showed evidence of putrefactive changes. In the fæces and stools obtained by calomel catharsis from the upper intestine, the normal bacilli, viz. gram-negative forms belonging to the *B. coli communis* and *B. lactis aerogenes* group, appeared absent, while the bacterial elements belonged to the gram positive group, the most constant being one which the author named *B. infantilis*.

As improvement set in there was a gradual return to normal bacterial conditions. The author says that the relation of *B. infantilis* to the genesis of infantilism must be left open, but it is certain that in its most extreme form intestinal infantilism is associated with the persistence and dominance of types of intestinal flora which belong to the period of infancy, and the persistence of which, in the third to eighth year of life, must be regarded as pathological.

The author believes that the cause of arrested development is due to serious defect in the power of absorption and digestion of food-stuffs. In treating these cases he found that drugs, purgatives, and intestinal antiseptics, gave little help. With careful hygienic and dietetic supervision the intestinal disturbance was checked, and gradually, although often with the utmost difficulty, an increase of weight followed.

The observations on which this study is based were of a purely clinical nature, and the deductions cannot be accepted as conclusive, but they are suggestive and interesting, and are presented by an investigator of experience. L. G. A.

PLASTICITY IN PLANTS.

The Heredity of Acquired Characters in Plants. By the Rev. Prof. George Henslow. (London: John Murray, 1908.) Pp. xii+107; 24 illustrations. Price 6*s*. net.

THE object of Prof. Henslow's book is "to prove that evolution—so far as plants are concerned—depends upon the inheritance of acquired characters." "This was Darwin's contention." See, for instance, the summary statement on p. 424 of the sixth edition of the "Origin of Species"! "Present-day ecologists who study plants in nature are all at one in accepting the fact that evolution in plants is the result, not only of a natural response to the direct action of changed conditions of life, by means of which they evolve new structures in adaptation to their new environments, but that these acquired characters *can* become hereditary." The author calls this, for some strange reason, "the true Darwinism." His general argument, which is backed up by many very interesting facts, may be illustrated by taking the following instance:—"A certain plant of a Trichosanthes, happening to have its tendrils touching the wall of the glass frame in which it grew, instantly developed a number of minute pads which adhered to the wall, though such a structure is not known to exist in the cucumber family at all." A common sea-weed, *Plocamium coccineum*, makes similar pads if a tip happen to press against another sea-weed. Mere mechanical force produces through response hereditary structures. In the American Virginia creeper the tendrils form adhesive tips when they touch the wall. These are not hereditary, but the power to form them is. In the Japanese Virginia creeper they are partially developed before there is any contact with the wall. "They are hereditary, but quite useless until contact has taken place, when they at once begin to develop into perfectly adaptive structures. Such is obviously a result of a response with adaptation to a purely mechanical contact of the soma with the wall, and before any reproductive germ-cells exist." As the author says, "botanists have this great advantage; they have *facts* to deal with, and no theories whatever to maintain."

Prof. Henslow's book is of much value in giving fine examples of the plasticity of plants under external stimulus, *i.e.* of the appearance of new features in unwonted conditions. But it is difficult to decide how far the observed change of structure in an individual plant is a direct result of the environmental influence, and how far it is due to the liberation or inhibition of constitutional possibilities established long ago. The author thinks the first view is the correct one, and he points out that similar modifications are exhibited in similar conditions by many quite unrelated plants. As to the heritability of modifications the individual occurrence of which is recognised by all, Prof. Henslow admits that changed plants may at once begin to change back again when the novel stimulus is withdrawn, but he maintains that the acquisition may last long enough to show that it was hereditary. This is a crucial point, and should have been worked out more precisely. The author gives cases like the following:—Lesage made plants, such as garden-cress, succulent, by watering them with salt water; plants raised from seed of the somewhat succulent salted plants were still more succulent in the following year.

The general conclusion of Prof. Henslow's book is that "the origin of species is due to the joint action alone of the two great factors of evolution—*Variability* and *Environment*—without the aid of natural selection; although we are, and are likely to remain, profoundly ignorant of the mysterious process (of *Response*) within the organism by which it is effected."

AGRICULTURAL CHEMISTRY.

Elementary Agricultural Chemistry: a Handbook for Junior Agricultural Students and Farmers. By Herbert Ingle. Pp. ix+250. (London: C. Griffin and Co., Ltd., 1908.) Price 4*s*. 6*d*. net.

TEACHERS at agricultural schools and colleges are placed in the difficult position of having to teach a branch of applied chemistry to pupils who have little time, and often less inclination, to study pure chemistry. The best method of procedure has probably not so far been found, nor has agricultural chemistry as yet fallen into the hands of the text-book writer to anything like so complete an extent as its parents on both sides. It is, however, pretty clear what the agricultural student ought to be able to do. He should have a good working conception of